

What is claimed is:

1. A semiconductor device configured for use in cooperation with a processor-based system, including:

5 a first number of components formed on the semiconductor device; and
a plurality of communication channels configured to transfer data between
respective ones of the components and other elements of the system;
wherein the semiconductor device is configured for operation in cooperation with
the system using a second number of the components, the second number being less than
10 the first number.

2. The device of claim 1, further including a controller configured to control operations of the components.

15 3. The device of claim 2, wherein the operations include an operation of placing at least one component in a wait state.

4. The device of claim 1, wherein:
the components include microprocessors; and
20 the communication channels include I/O paths connected to at least one I/O interface for the semiconductor device.

5. The device of claim 1, wherein:
the components include I/O controllers; and
25 the communication channels include I/O paths connected to at least one I/O interface for the semiconductor device.

6. The device of claim 1, wherein at least one of the components beyond the first number of components is provided as a redundant component to the first number of components.

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7. A semiconductor device configured for use in cooperation with a processor-based system, including:

a number z of processors formed on the semiconductor device; and

a plurality of I/O controllers connected to I/O interfaces for the semiconductor

10 device and configured to control data transfer between the processors and the interfaces;

wherein the device is configured to provide a number x of operational processors for use by the processor-based system, and where the number z is greater than the number x , thereby providing a number $z - x$ of redundant processors.

15 8. The device of claim 7, further including failover logic configured to determine when one of the x processors has failed, and upon such determination to provide one of the $z - x$ redundant processors for operation with the processor-based system.

9. The device of claim 7, further including logic configured to place at least one of the
20 $z - x$ redundant processors in a wait state.

10. A method of manufacturing a semiconductor device for use in cooperation with a processor-based system, including the steps of:

forming a number z of components on the device;

25 forming control logic on the device configured to provide a number $x < z$ of operational components to operate in cooperation with the system.

11. The method of claim 10, further including the steps of:
testing the z processors to determine a number y of functional components; and
determining whether the number y is at least as great as the number x , to determine
5 whether the semiconductor device is usable for operation with the system.

12. The method of claim 10, wherein the components are microprocessors configured
for use in a multiprocessor system.

10 13. The method of claim 10, wherein the components are I/O controllers configured to
control I/O for the semiconductor device.

14. The method of claim 10, further including the step of configuring the control logic
to place at least one of the components beyond the first x operational components in a
15 wait state.

15. A processor-based system configured to operate using at least a number x of
components provided on a semiconductor device including a number $z > x$ of the
components, the system including:
20 control logic to determine whether at least x of the components are operational,
and if so, to hold any excess number of components beyond the x operational
components in a backup mode.

16. The system of claim 15, wherein:
25 the processor-based system includes the semiconductor device, and
the control logic is formed at least in part on the semiconductor device.

17. The system of claim 16, wherein the control logic is at least in part provided external to the semiconductor device.

5 18. The system of claim 15, wherein the components comprise a number y of operational processors formed on the semiconductor device, where $y \geq x$, thereby providing a number $(y - x) \geq 0$ of backup processors for the system.

10 19. The system of claim 15, wherein the components comprise a number y of operational I/O controllers formed on the semiconductor device, where $y \geq x$, thereby providing a number $(y - x) \geq 0$ of backup I/O controllers for the system.

20. The system of claim 15, wherein the control logic is configured to place the excess number of components in a wait state.